Dell™ Inspiron™ N5110
Service Manual

Regulatory model: P17F **Regulatory type: P17F001**

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Regulatory model: P17F **Regulatory type: P17F001**

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1

Before You Begin

This manual provides procedures for removing and installing components in your computer. Unless otherwise noted, each procedure assumes that the following conditions exist:

- You have performed the steps in "Turning Off Your Computer" on page 9 and "Before Working Inside Your Computer" on page 10.
- You have read the safety information that shipped with your computer.
- A component can be replaced or—if purchased separately—installed by performing the removal procedure in the reverse order.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- Phillips screwdriver
- Plastic scribe
- BIOS executable update program available at **support.dell.com**

Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Save and close all open files and exit all open programs.
2. Click the Start button and then click **Shut Down**.

   The computer turns off after the operating system shutdown process finishes.
3. Ensure that the computer is turned off. If your computer did not automatically turn off when you shut down the operating system, press and hold the power button until the computer turns off.

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your own personal safety.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

CAUTION: To avoid damaging the computer, perform the following steps before you begin working inside the computer.

1. Ensure that the work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see "Turning Off Your Computer" on page 9) and all attached devices.

CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

3. Disconnect all telephone or network cables from the computer.
4. Press and eject any installed cards from the 8-in-1 media card reader.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Disconnect all attached devices from your computer.

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

7 Remove the battery (see "Removing the Battery" on page 15).

8 Turn the computer top-side up, open the display, and press the power button to ground the system board.

2

Top Cover

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the Top Cover

1. Follow the instructions in "Before You Begin" on page 9.
2. Press and hold the release button that secures the top cover to the display back cover.
3. Slide and lift the top cover.

1 top cover 2 release button

Replacing the Top Cover

1 Follow the instructions in "Before You Begin" on page 9.

NOTE: Ensure that the DELL logo is facing towards the back of the computer while replacing the top cover.

2 Align the top cover to the display back cover.

3 Slide the top cover until it clicks into place. Ensure that there are no gaps between the top cover and display back cover.

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

3

Battery

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

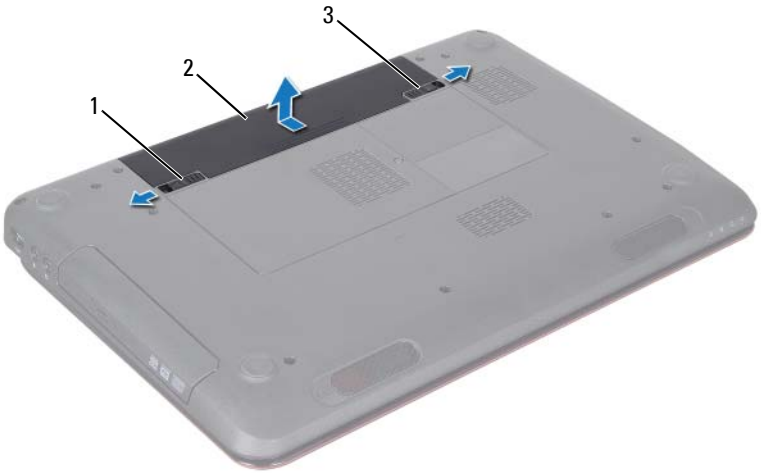
CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

Removing the Battery

1. Follow the instructions in "Before You Begin" on page 9.
2. Shut down the computer and turn it over.
3. Slide the battery release latch and the battery lock latch to the unlock positions.
4. Slide and lift the battery out of the battery bay.



1	battery release latch	2	battery
3	battery lock latch		

Replacing the Battery

1. Follow the instructions in "Before You Begin" on page 9.
2. Slide the battery into the battery bay until it clicks into place.
3. Slide the battery lock latch to the lock position.

4

Module Cover

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

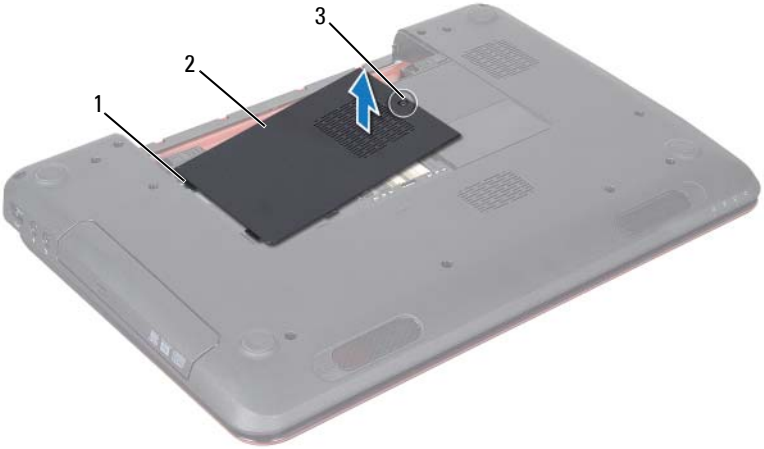
CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell™ is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the Module Cover

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. Loosen the captive screw that secures the module cover to the base cover.
4. Using your fingertips, release the tabs on the module cover from the slots on the computer base.
5. Lift the module cover off the computer base.



1	tabs	2	module cover
3	captive screw		

Replacing the Module Cover

CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer.

1. Follow the instructions in "Before You Begin" on page 9.
2. Align the tabs on the module cover with the slots on the computer base and snap the module cover into place.
3. Tighten the captive screw that secures the module cover to the computer base.
4. Replace the battery (see "Replacing the Battery" on page 16).

5

Memory Module(s)

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

You can increase your computer memory by installing memory modules on the system board. See "Specifications" in your *Setup Guide* for information on the type of memory supported by your computer.

NOTE: Memory modules purchased from Dell are covered under your computer warranty.

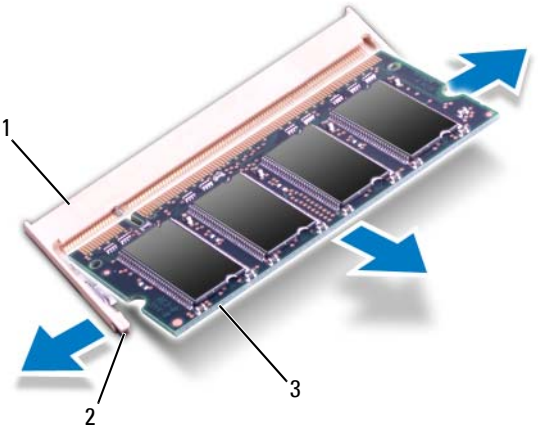
Your computer has two user-accessible SODIMM sockets, labeled DIMM A and DIMM B, that can be accessed from the bottom of the computer.

Removing the Memory Module(s)

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. Remove the module cover (see "Removing the Module Cover" on page 17).

CAUTION: To prevent damage to the memory module connector, do not use tools to spread the memory module securing clips.

4. Use your fingertips to carefully spread apart the securing clips on each end of the memory-module connector until the memory module pops up.
5. Remove the memory module from the memory-module connector.



1 memory-module connector 2 securing clips (2)

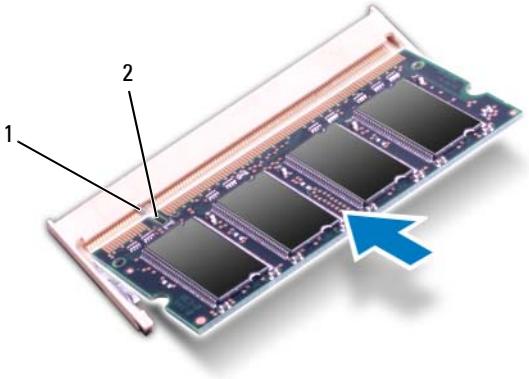
3 memory module

Replacing the Memory Module(s)

CAUTION: If you need to install memory modules in two connectors, install a memory module in the connector labeled "DIMM A" before you install a memory module in the connector labeled "DIMM B."

1. Follow the instructions in "Before You Begin" on page 9.
2. Align the notch in the memory module with the tab in the memory-module connector.
3. Slide the memory module firmly into the slot at a 45-degree angle, and press the memory module down until it clicks into place. If you do not hear the click, remove the memory module and reinstall it.

NOTE: If the memory module is not installed properly, the computer may not boot.



1 tab 2 notch

4 Replace the module cover (see "Replacing the Module Cover" on page 18).

5 Replace the battery (see "Replacing the Battery" on page 16), or connect the AC adapter to your computer and an electrical outlet.

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

6 Turn on the computer.

As the computer boots, it detects the memory module(s) and automatically updates the system configuration information.

To confirm the amount of memory installed in the computer:

Click **Start** → **Control Panel** → **System and Security** → **System**.

6

Optical Drive

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

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CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the Optical Drive

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. Remove the module cover (see "Removing the Module Cover" on page 17).
4. Using a plastic scribe, push the optical drive bracket to slide the optical-drive assembly out.
5. Slide the optical-drive assembly out of the optical-drive bay.

1 optical-drive assembly 2 plastic scribe

Replacing the Optical Drive

1. Follow the instructions in "Before You Begin" on page 9.
2. Slide the optical-drive assembly into the optical-drive bay until it is fully seated.
3. Replace the module cover (see "Replacing the Module Cover" on page 18).
4. Replace the battery (see "Replacing the Battery" on page 16).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

7

Keyboard

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the Keyboard

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).

CAUTION: The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the keyboard.

3. Turn the computer over and open the display as far as possible.
4. Slide a plastic scribe between the slots on the keyboard and release the tabs on the plam rest.
5. Lift and slide the keyboard to remove the tabs on the keyboard from the slots on the palm rest.

1 plastic scribe 2 keyboard

CAUTION: The keycaps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Be careful when removing and handling the keyboard.

CAUTION: Be extremely careful when removing and handling the keyboard. Failure to do so could result in scratching the display panel.

6 Carefully turn the keyboard over and place it on the palm rest assembly.

7 Lift the connector latch that secures the keyboard cable to the connector on the system board and remove the keyboard cable.

8 Lift the keyboard off the computer.

1 keyboard cable 2 keyboard-cable connector

Replacing the Keyboard

1. Follow the instructions in "Before You Begin" on page 9.
2. Slide the keyboard cable into the connector on the system board and press down on the connector latch to secure the cable.
3. Slide the tabs on the keyboard into the slots on the palm-rest assembly and lower the keyboard into place.
4. Gently press around the edges of the keyboard and slide it upwards to secure the keyboard under the tabs on the palm rest.
5. Close the display and turn the computer over.

6 Replace the battery (see "Replacing the Battery" on page 16).

8

Palm-Rest Assembly

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the Palm-Rest Assembly

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. Remove the six screws that secure the palm-rest assembly to the computer base.

4 Turn the computer over and open the display as far as possible.

5 Remove the keyboard (see "Removing the Keyboard" on page 27).

6 Remove the four screws on the palm-rest assembly.

CAUTION: Pull on the plastic tab on top of the connectors to avoid damaging the connectors.

7 Disconnect the power-button board cable, touch-pad cable, and hot-key board cable from the connectors on the system board.

1	power-button board cable	2	touch-pad cable
3	screws (4)	4	hot-key board cable

CAUTION: Carefully separate the palm rest from the computer base to avoid damage to the palm rest.

8 Using a plastic scribe, carefully pry out the palm-rest assembly along the rear edge and then ease the palm-rest assembly from the computer base

9 Lift the palm-rest assembly off the computer base.

1 plastic scribe 2 palm-rest assembly

Replacing the Palm-Rest Assembly

1. Follow the instructions in "Before You Begin" on page 9.
2. Align the tabs on the palm rest assembly with the slots on the computer base and gently snap the palm rest assembly in place.
3. Slide the touch-pad cable, power-button board cable, and hot-key board cable into the connectors on the system board and press down on the connector latches to secure them.
4. Replace the four screws on the palm-rest assembly.
5. Replace the keyboard (see "Replacing the Keyboard" on page 29).

6 Close the display and turn the computer over.

7 Replace the six screws that secure the palm-rest assembly to the computer base.

8 Replace the battery (see "Replacing the Battery" on page 16).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

9

Wireless Mini-Card(s)

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

NOTE: Dell does not guarantee compatibility or provide support for Mini-Cards from sources other than Dell.

If you ordered a wireless Mini-Card with your computer, the card is already installed.

Your computer has one full Mini-Card slot for Wireless Wide Area Network (WWAN) and one half Mini-Card slot for Worldwide Interoperability for Microwave Access (WiMax/WLAN).

NOTE: Depending on the configuration of the computer when it was sold, the Mini-Card slot may or may not have a Mini-Card installed.

Removing the Mini-Card(s)

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. If you are removing the WiMax/WWAN Mini-Card:

    a. Remove the module cover (see "Removing the Module Cover" on page 17).

b Disconnect the antenna cables from the Mini-Card.

c Remove the screw that secures the Mini-Card to the system board.

d Lift the Mini-Card out of the system-board connector.

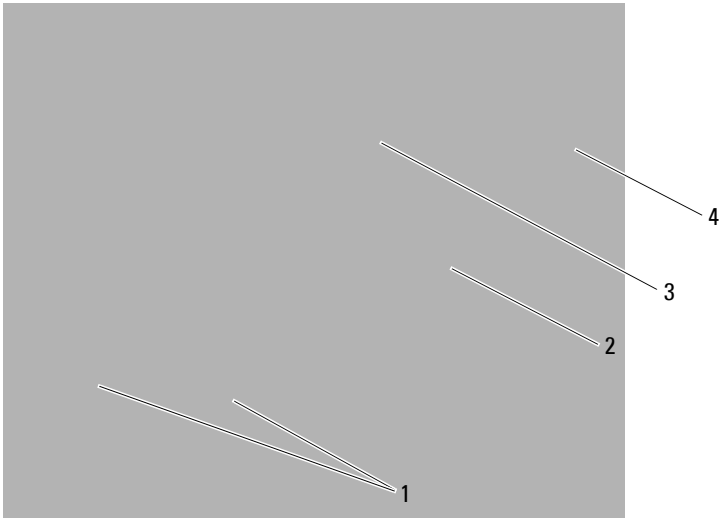
4 If you are removing the WLAN Mini-Card:

a Follow the instructions from step 3 to step 9 in "Removing the Palm-Rest Assembly" on page 31.

b Disconnect the antenna cables from the Mini-Card.

c Remove the screw that secures the Mini-Card to the system board.

d Lift the Mini-Card out of the system-board connector.



1	antenna cables (2)	2	Mini-Card
3	screw	4	system-board connector

CAUTION: When the Mini-Card is not in the computer, store it in protective antistatic packaging. For more information, see "Protecting Against Electrostatic Discharge" in the safety information that shipped with your computer.

Replacing the Mini-Card(s)

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the new Mini-Card from its packaging.

CAUTION: Use firm and even pressure to slide the card into place. If you use excessive force, you may damage the connector.

CAUTION: The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors on the card and on the system board, and realign the card.

CAUTION: To avoid damage to the Mini-Card, never place cables under the card.

3. Insert the Mini-Card connector at a 45-degree angle into the system-board connector.
4. Press the other end of the Mini-Card down into the slot on the system board and replace the screw that secures the Mini-Card to the system board.
5. Connect the appropriate antenna cables to the Mini-Card you are installing. The following table provides the antenna cable color scheme for the Mini-Cards supported by your computer.

Connectors on the Mini-Card	Antenna Cable Color Scheme
WLAN (2 antenna cables)	
Main WLAN (white triangle)	white
Auxiliary WLAN (black triangle)	black
WiMax/WWAN (2 antenna cables)	
Main WiMaX/WWAN (white triangle)	white with gray stripe
Auxillary WiMaX/WWAN (black triangle)	black with gray stripe

6. If you are replacing the WiMax/WWAN Mini-Card:

   Replace the module cover (see "Replacing the Module Cover" on page 20).
7. If you are replacing the WLAN Mini-Card:

Follow the instructions from step 4 to step 8 in "Replacing the Palm-Rest Assembly" on page 34.

8 Replace the battery (see "Replacing the Battery" on page 16).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

9 Install the drivers and utilities for your computer, as required.

NOTE: If you are installing a communication card from a source other than Dell, you must install the appropriate drivers and utilities.

10

Display

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Display Assembly

Removing the Display Assembly

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. Remove the two screws that secure the display assembly to the computer base.

4 Follow the instructions from step 3 to step 9 in "Removing the Palm-Rest Assembly" on page 31.

5 Disconnect the display cable and touch-screen cable from the system-board connectors.

NOTE: The touch-screen board is optional and may not be present in your computer.

6 Disconnect the Mini-Card antenna cables from the connectors on the Mini-Card(s) (see "Removing the Mini-Card(s)" on page 37).

7 Note the routing of the Mini-Card antenna cables and remove the cables from the routing guides.

8 Remove the four screws that secure the display assembly to the computer base.

9 Lift the display assembly off the computer base.

1	display assembly	2	screws (4)
3	display-cable connector	4	Mini-Card antenna cables (2)

Replacing the Display Assembly

1. Follow the instructions in "Before You Begin" on page 9.
2. Place the display assembly in position and replace the four screws that secure the display assembly to the computer base.
3. Route the Mini-Card antenna cables through the routing guides.
4. Connect the Mini-Card antenna cables to the Mini-Card(s) (see "Replacing the Mini-Card(s)" on page 39).

5 Connect the display cable and touch-screen cable to the connectors on the system board.

6 Follow the instructions from step 2 to step 7 in "Replacing the Palm-Rest Assembly" on page 34.

7 Replace the two screws that secure the display assembly to the computer base.

8 Replace the battery (see "Replacing the Battery" on page 16).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

Display Bezel

Removing the Display Bezel

1 Follow the instructions in "Before You Begin" on page 9.

2 Remove the top cover (see "Removing the Top Cover" on page 13).

3 Remove the display assembly (see "Removing the Display Assembly" on page 41).

CAUTION: The display bezel is extremely fragile. Be careful when removing it to prevent damaging the display bezel.

4 Using your fingertips, carefully pry up the inside edge of the display bezel.

5 Remove the display bezel.

1 display bezel

Replacing the Display Bezel

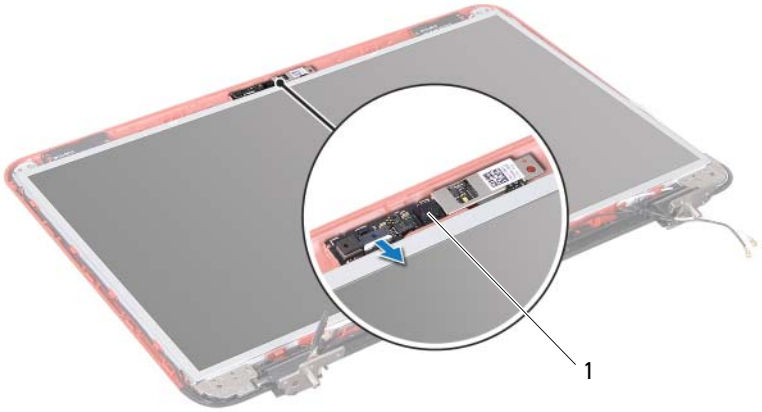
1. Follow the instructions in "Before You Begin" on page 9.
2. Realign the display bezel over the display panel and gently snap it into place.
3. Replace the display assembly (see "Replacing the Display Assembly" on page 43).
4. Replace the top cover (see "Replacing the Top Cover" on page 14).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

Display Panel

Removing the Display Panel

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the display assembly (see "Removing the Display Assembly" on page 41).
3. Remove the display bezel (see "Removing the Display Bezel" on page 44).
4. Disconnect the camera cable from the connector on the camera module.



1 camera module

5. Remove the eight screws that secure the display panel to the display back cover.
6. Lift the display panel off the display back cover.

1	display back cover	2	display panel
3	screws (8)		

7. Make a note of the display cable and Mini-Card antenna cables routing and remove them from the routing guides on the display back cover.
8. Turn the display panel over and place it on a clean surface.
9. Remove the display cable (see "Removing the Display Cable" on page 48).
10. Remove the display-panel brackets (see "Removing the Display-Panel Brackets" on page 50).

Replacing the Display Panel

1. Follow the instructions in "Before You Begin" on page 9.
2. Replace the display-panel brackets (see "Replacing the Display-Panel Brackets" on page 50).
3. Replace the display cable (see "Replacing the Display Cable" on page 49).
4. Connect the camera cable to the connector on the camera module.
5. Route the display cable and Mini-Card antenna cables through the routing guides on the display back cover.

6 Align the screw holes on the display panel with the screw holes on the display back cover and replace the eight screws.

7 Replace the display bezel (see "Replacing the Display Bezel" on page 45).

8 Replace the display assembly (see "Replacing the Display Assembly" on page 43).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

Display Cable

Removing the Display Cable

1 Follow the instructions in "Before You Begin" on page 9.

2 Remove the display assembly (see "Removing the Display Assembly" on page 41).

3 Remove the display bezel (see "Removing the Display Bezel" on page 44).

4 Remove the display panel (see "Removing the Display Panel" on page 46).

5 Lift the tape that secures the display cable to the display-board connector and disconnect the display cable.

1 display cable 2 tape

Replacing the Display Cable

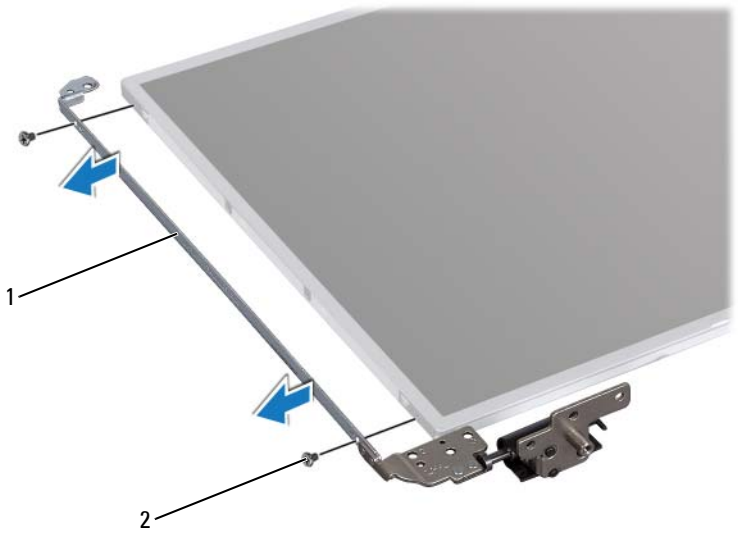
1. Follow the instructions in "Before You Begin" on page 9.
2. Connect the display cable to the display-board connector and secure it with the tape.
3. Replace the display panel (see "Replacing the Display Panel" on page 47).
4. Replace the display bezel (see "Replacing the Display Bezel" on page 45).
5. Replace the display assembly (see "Replacing the Display Assembly" on page 43).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

Display-Panel Brackets

Removing the Display-Panel Brackets

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the display assembly (see "Removing the Display Assembly" on page 41).
3. Remove the display bezel (see "Removing the Display Bezel" on page 44).
4. Remove the display panel (see "Removing the Display Panel" on page 46).
5. Remove the four screws (two on each side) that secure the display-panel brackets to the display panel.



1 display brackets (2) 2 screws (4)

Replacing the Display-Panel Brackets

1. Follow the instructions in "Before You Begin" on page 9.

2 Align the screw holes on the display-panel bracket with the screw holes on the display panel and replace the four screws (two on each side).

3 Replace the display panel (see "Replacing the Display Panel" on page 47).

4 Replace the display bezel (see "Replacing the Display Bezel" on page 45).

5 Replace the display assembly (see "Replacing the Display Assembly" on page 43).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

11

Hinge Cover

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

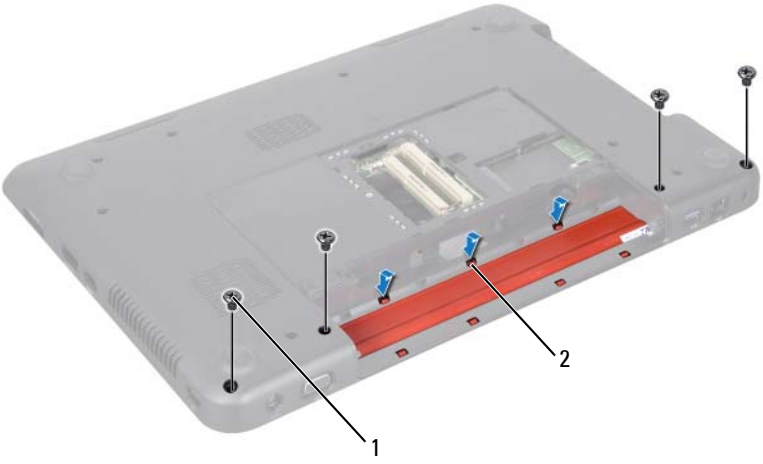
CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

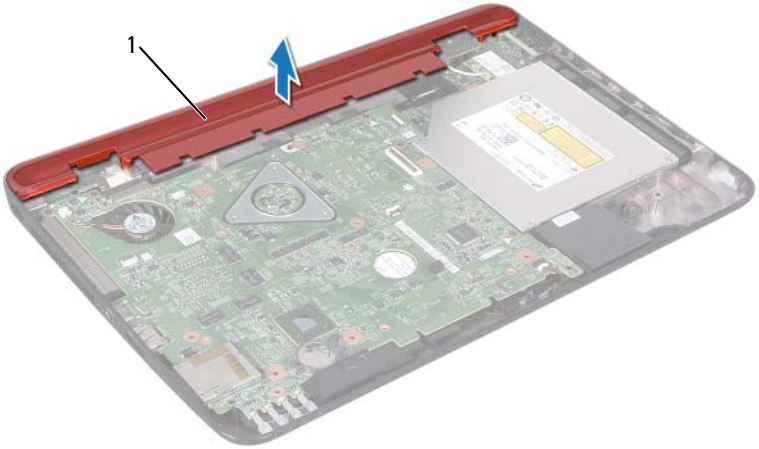
Removing the Hinge Cover

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. Remove the display assembly (see "Removing the Display Assembly" on page 41).
4. Remove the four screws that secure the hinge cover to the computer base.
5. Push the three tabs that secure the hinge cover to the computer base.



1 screws (4) 2 tabs (7)

6 Lift the hinge cover off the computer base.



1 Hinge Cover

Replacing the Hinge Cover

1. Follow the instructions in "Before You Begin" on page 9.
2. Align the seven tabs on the hinge cover with the slots on the computer base and snap the hinge cover into place.
3. Replace the four screws that secure the hinge cover to the computer base.
4. Replace the display assembly (see "Replacing the Display Assembly" on page 43).
5. Replace the battery (see "Replacing the Battery" on page 16).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

12

Camera Module

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

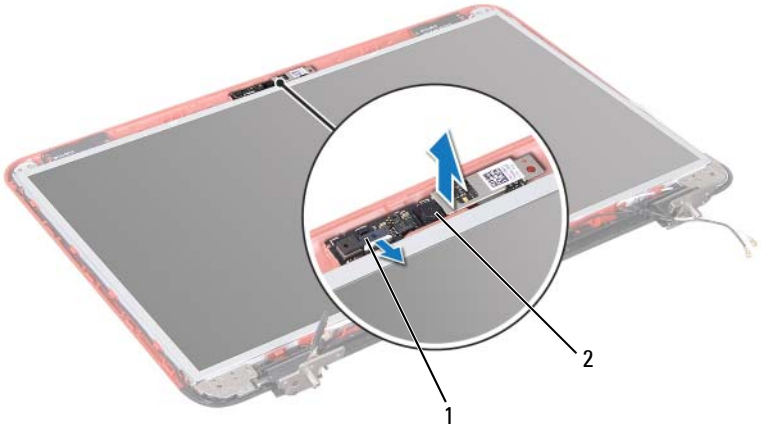
CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the Camera Module

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. Follow the instructions from step 3 to step 9 in "Removing the Palm-Rest Assembly" on page 31.
4. Remove the display assembly (see "Removing the Display Assembly" on page 41).
5. Remove the display bezel (see "Removing the Display Bezel" on page 44).
6. Remove the display panel (see "Removing the Display Panel" on page 46).
7. Gently peel the camera module from the from the display back cover.
8. Remove the camera module.



1 camera module cable connector 2 camera module

Replacing the Camera Module

1. Follow the instructions in "Before You Begin" on page 9.
2. Use the alignment posts on the display back cover to place the camera module in position and adhere it in place.
3. Replace the display panel (see "Replacing the Display Panel" on page 47).
4. Replace the display bezel (see "Replacing the Display Bezel" on page 45).
5. Replace the display assembly (see "Replacing the Display Assembly" on page 43).
6. Follow the instructions from step 2 to step 7 in "Replacing the Palm-Rest Assembly" on page 34.
7. Replace the battery (see "Replacing the Battery" on page 16).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

13

Coin-Cell Battery

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the Coin-Cell Battery

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. Follow the instructions from step 3 to step 9 in "Removing the Palm-Rest Assembly" on page 31.
4. Use a plastic scribe and gently pry the coin-cell out of the battery socket on the system board.
5. Lift the coin-cell battery out of the battery socket.

1 plastic scribe 2 coin-cell battery

Replacing the Coin-Cell Battery

1. Follow the instructions in "Before You Begin" on page 9.
2. With the positive side up, snap the coin-cell battery into the battery socket on the system board.
3. Follow the instructions from step 2 to step 7 in "Replacing the Palm-Rest Assembly" on page 34.
4. Replace the battery (see "Replacing the Battery" on page 16).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

14

System Board

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

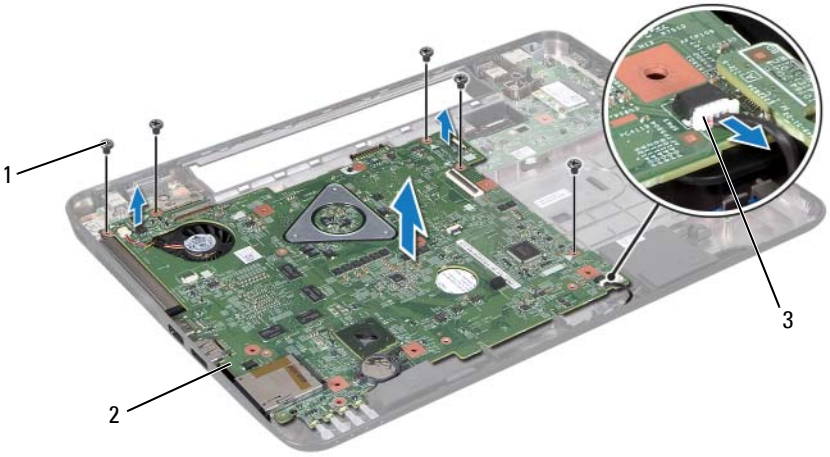
CAUTION: Handle components and cards by their edges, and avoid touching pins and contacts.

Removing the System Board

1. Follow the instructions in "Before You Begin" on page 9.
2. Press and eject any installed cards from the 8-in-1 media card reader.
3. Remove the battery (see "Removing the Battery" on page 15).
4. Remove the module cover (see "Removing the Module Cover" on page 17).
5. Follow the instructions from step 4 to step 5 in "Removing the Optical Drive" on page 23.
6. Remove the memory module(s) (see "Removing the Memory Module(s)" on page 19).
7. Follow the instructions from step 3 to step 9 in "Removing the Palm-Rest Assembly" on page 31.
8. Remove the display assembly (see "Removing the Display Assembly" on page 41).
9. Remove the hinge cover (see "Removing the Hinge Cover" on page 53).

10 Disconnect the speaker cable from the connector on the system board.

11 Remove the five screws that secure the system board to the computer base.



1	screws (5)	2	system board
3	speakers cable connector		

12 Lift the system board assembly to disconnect the connector on the system board from the connector on the I/O board.

13 Turn the system board assembly over.

14 Follow the instructions from step 3 to step 5 in "Removing the Hard Drive" on page 71.

15 Remove the thermal cooling assembly (see "Removing the Thermal-Cooling Assembly" on page 75).

16 Remove the processor module (see "Removing the Processor Module" on page 79).

Replacing the System Board

1. Follow the instructions in "Before You Begin" on page 9.
2. Replace the processor module (see "Replacing the Processor Module" on page 80).
3. Replace the thermal cooling assembly (see "Replacing the Thermal-Cooling Assembly" on page 76).
4. Follow the instructions from step 5 to step 7 in "Replacing the Hard Drive" on page 73.
5. Turn the system board assembly over.
6. Slide the connectors on the system board into the slots on the computer base.
7. Gently press the system board to connect the connector on the system board to the connector on the I/O board.
8. Replace the five screws that secure the system board to the computer base.
9. Connect the speaker cable, to the connector on the system board.
10. Replace the hinge cover (see "Replacing the Hinge Cover" on page 55).
11. Replace the display assembly (see "Replacing the Display Assembly" on page 43).
12. Follow the instructions from step 2 to step 7 in "Replacing the Palm-Rest Assembly" on page 34.
13. Replace the memory module (see "Replacing the Memory Module(s)" on page 20).
14. Replace the module cover (see "Replacing the Module Cover" on page 18).
15. Replace the battery (see "Replacing the Battery" on page 16).
16. Replace any cards or blanks removed from the 8-in-1 media card reader.

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

17. Turn on the computer.

NOTE: After you have replaced the system board, enter the computer Service Tag in the BIOS of the replacement system board.

18 Enter the service tag (see "Entering the Service Tag in the BIOS" on page 68).

Entering the Service Tag in the BIOS

1 Ensure that the AC adapter is plugged in and that the main battery is installed properly.

2 Turn on the computer.

3 Press <F2> during POST to enter the system setup program.

4 Navigate to the security tab and enter the service tag in the **Set Service Tag** field.

15

Speakers

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

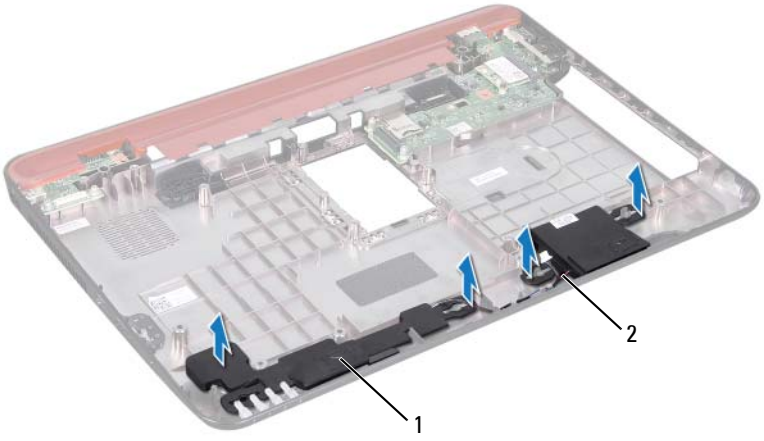
CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the Speakers

1. Follow the instructions in "Before You Begin" on page 9.
2. Follow the instructions from step 5 to step 14 in "Removing the System Board" on page 65.
3. Make a note of the speakers cable routing and lift the speakers along with the cable off the computer base.



1 speakers (2) 2 speaker cable

Replacing the Speakers

1. Follow the instructions in "Before You Begin" on page 9.
2. Place the speakers on the computer base and route the speaker cable through the routing guides.
3. Follow the instructions from step 2 to step 17 in "Replacing the System Board" on page 67.

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

16

Hard Drive

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

WARNING: If you remove the hard drive from the computer when the drive is hot, *do not touch* the metal housing of the hard drive.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

CAUTION: To prevent data loss, turn off your computer (see "Turning Off Your Computer" on page 9) before removing the hard-drive assembly. Do not remove the hard drive while the computer is On or in Sleep state.

CAUTION: Hard drives are extremely fragile. Exercise care when handling the hard drive.

NOTE: Dell does not guarantee compatibility or provide support for hard drives from sources other than Dell.

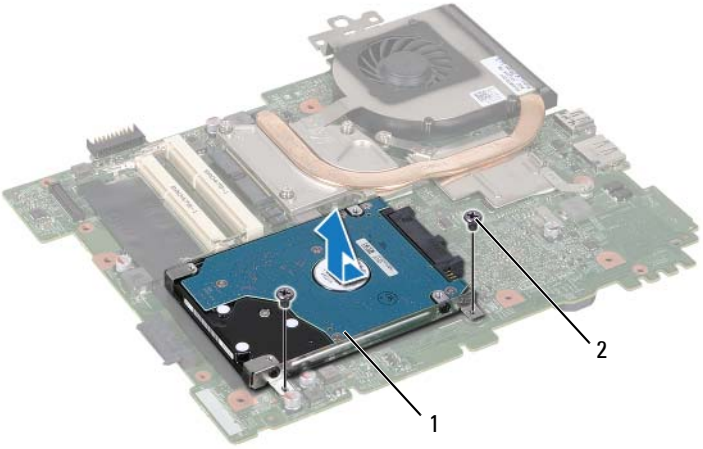
NOTE: If you are installing a hard drive from a source other than Dell, you need to install an operating system, drivers, and utilities on the new hard drive.

Removing the Hard Drive

1. Follow the instructions in "Before You Begin" on page 9.
2. Follow the instructions from step 2 to step 13 in "Removing the System Board" on page 65.
3. Remove the two screws that secure the hard-drive assembly to the system board.

4 Slide the hard-drive assembly to disconnect it from the system-board connector.

5 Lift the hard-drive assembly off the system board.



1 hard-drive assembly 2 screws (2)

6 Remove the four screws that secure the hard drive to the hard-drive bracket.

7 Lift the hard drive away from the hard-drive bracket.

1 screws (4) 2 hard-drive bracket

Replacing the Hard Drive

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the new hard drive from its packaging.

   Save the original packaging for storing or shipping the hard drive.
3. Place the hard drive in the hard-drive bracket.
4. Replace the four screws that secure the hard drive to the hard-drive bracket.
5. Place the hard-drive assembly on the system board.
6. Slide the hard-drive assembly to connect it to the system-board connector.
7. Replace the two screws that secure the hard-drive assembly to the system-board.
8. Follow the instructions from step 6 to step 16 in "Replacing the System Board" on page 67.

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

17

Thermal-Cooling Assembly

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

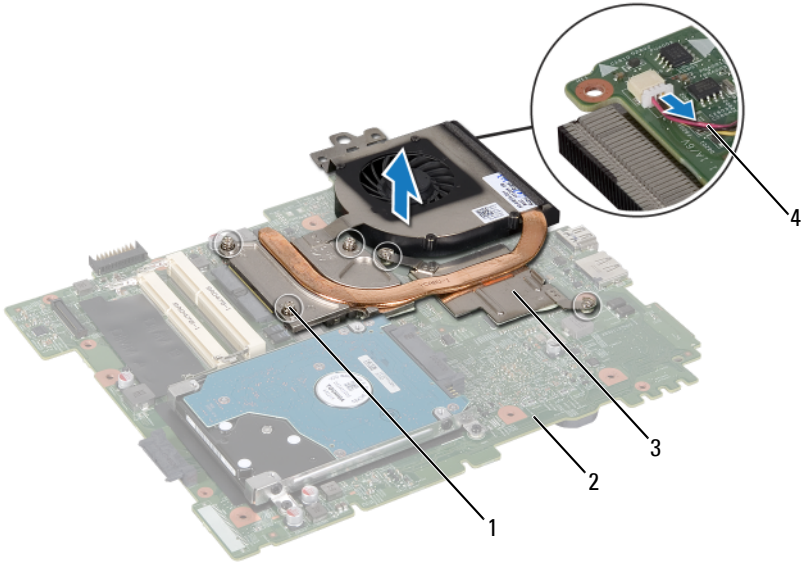
CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the Thermal-Cooling Assembly

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the battery (see "Removing the Battery" on page 15).
3. Follow the instructions from step 2 to step 13 in "Removing the System Board" on page 65.
4. Gently peel the tape that secures the fan cable to the system board.
5. Disconnect the fan cable from the connector on the system board.
6. In sequential order (indicated on the thermal-cooling assembly), loosen the five captive screws that secure the thermal-cooling assembly to the system board.
7. Lift the thermal-cooling assembly off the system board.



1	captive screws (5)	2	system board
3	thermal-cooling assembly	4	fan cable

Replacing the Thermal-Cooling Assembly

1. Follow the instructions in "Before You Begin" on page 9.
2. Align the screw holes on the thermal-cooling assembly with the screw holes on the system board.
3. Tighten the five screws that secure the thermal-cooling assembly to the system board.
4. Connect the fan cable to the connector on the system board.
5. Adhere the tape that secures the fan cable to the system board
6. Follow the instructions from step 4 to step 13 in "Replacing the System Board" on page 67.
7. Replace the battery (see "Replacing the Battery" on page 16).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

18

Processor Module

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

CAUTION: Handle components and cards by their edges, and avoid touching pins and contacts.

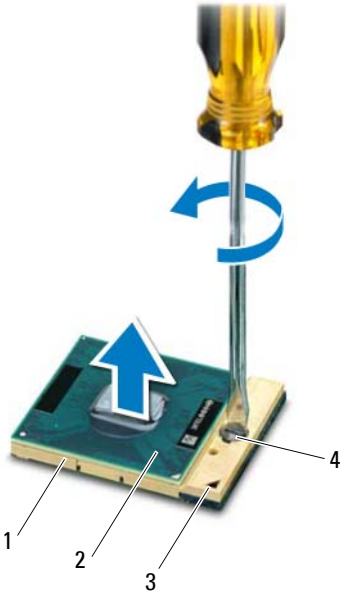
Removing the Processor Module

1. Follow the instructions in "Before You Begin" on page 9.
2. Follow the instructions from step 2 to step 15 in "Removing the System Board" on page 65.
3. To loosen the ZIF socket, use a small, flat-blade screwdriver and rotate the ZIF-socket cam screw counterclockwise until it comes to the cam stop.

CAUTION: To ensure maximum cooling for the processor, do not touch the heat transfer areas on the processor thermal-cooling assembly. The oils in your skin can reduce the heat transfer capability of the thermal pads.

CAUTION: When removing the processor module, pull the module straight up. Be careful not to bend the pins on the processor module.

4. Lift the processor module from the ZIF socket.



1	ZIF socket	2	processor module
3	pin-1 corner	4	ZIF-socket cam screw

Replacing the Processor Module

1. Follow the instructions in "Before You Begin" on page 9.

NOTE: If a new processor is installed, you will receive a new thermal-cooling assembly, which will include an affixed thermal pad, or you will receive a new thermal pad along with documentation to illustrate proper installation.

2. Align the pin-1 corner of the processor module with the pin-1 corner of the ZIF socket, then insert the processor module.

NOTE: The pin-1 corner of the processor module has a triangle that aligns with the triangle on the pin-1 corner of the ZIF socket.

When the processor module is properly seated, all four corners are aligned at the same height. If one or more corners of the module are higher than the others, the module is not seated properly.

CAUTION: To avoid damage to the processor, hold the screwdriver perpendicular to the processor when turning the cam screw.

3 Tighten the ZIF socket by turning the cam screw clockwise to secure the processor module to the system board.

4 Follow the instructions from step 3 to step 16 in "Replacing the System Board" on page 67.

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

19

I/O Board

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

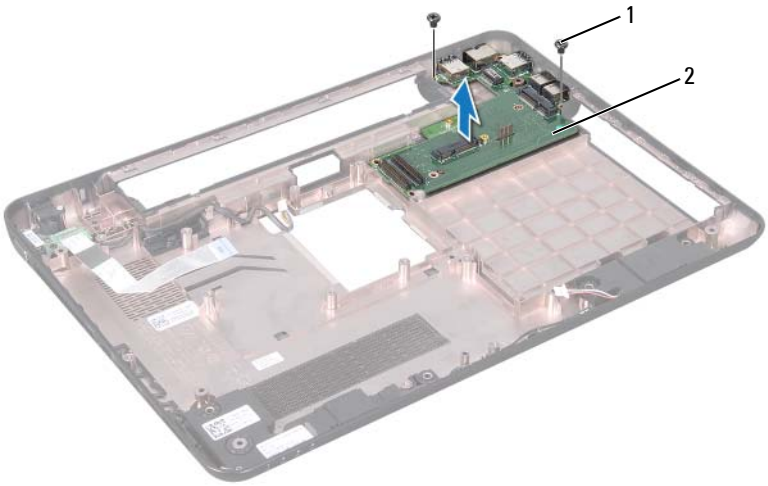
CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface.

CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the I/O Board

1. Follow the procedures in "Before You Begin" on page 9.
2. Remove the display assembly (see "Removing the Display Assembly" on page 41).
3. Follow the instructions from step 2 to step 12 in "Removing the System Board" on page 65.
4. Remove the hinge cover (see "Removing the Hinge Cover" on page 53).
5. Remove the Mini-Card(s) (see "Removing the Mini-Card(s)" on page 37).
6. Remove the two screws that secure the I/O board to the computer base.
7. Lift the I/O board at an angle to remove the connectors on the I/O board from the slots on the computer base.



1 screws (2) 2 I/O board

Replacing the I/O Board

1. Slide the connectors on the I/O board into the slots on the computer base and place the I/O board on the computer base.
2. Replace the two screws that secure the I/O board to the computer base.
3. Replace the Mini-Card(s) (see "Replacing the Mini-Card(s)" on page 39).
4. Replace the hinge cover (see "Replacing the Hinge Cover" on page 55).
5. Follow the instructions from step 6 to step 16 in "Replacing the System Board" on page 67.
6. Replace the display assembly (see "Replacing the Display Assembly" on page 43).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

20

VGA/Power Board

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

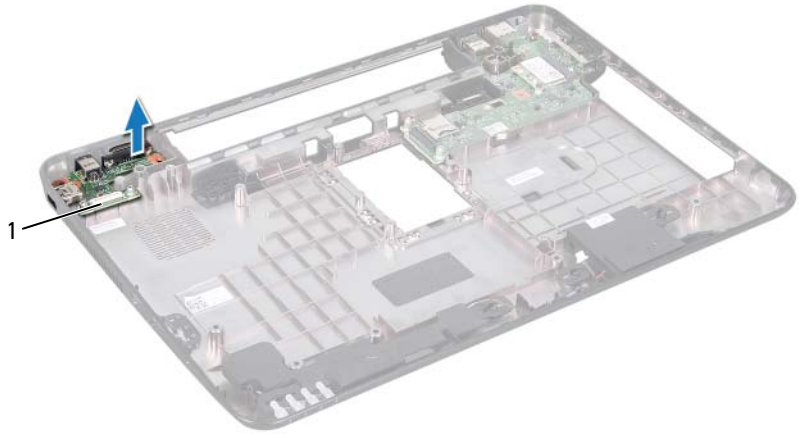
CAUTION: Only a certified service technician should perform repairs on your computer. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on your computer).

CAUTION: To help prevent damage to the system board, remove the main battery (see "Removing the Battery" on page 15) before working inside the computer.

Removing the VGA/Power Board

1. Follow the instructions in "Before You Begin" on page 9.
2. Remove the display assembly (see "Removing the Display Assembly" on page 41).
3. Follow the instructions from step 2 to step 12 in "Removing the System Board" on page 65.
4. Remove the hinge cover (see "Removing the Hinge Cover" on page 53).
5. Carefully ease the connectors on the VGA/Power board out of the slots in the base cover, and lift the VGA/Power Board off the base cover.



1 VGA/Power Board

Replacing the VGA/Power Board

1. Follow the instructions in "Before You Begin" on page 9.
2. Align the connectors on the VGA/Power board with the slots on the base cover and place it on the base cover.
3. Replace the hinge cover (see "Replacing the Hinge Cover" on page 55).
4. Follow the instructions from step 6 to step 17 in "Replacing the System Board" on page 67.
5. Replace the display assembly (see "Replacing the Display Assembly" on page 43).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

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Flashing the BIOS

The BIOS may require flashing when an update is available or when replacing the system board. To flash the BIOS:

1. Turn on the computer.
2. Go to **support.dell.com/support/downloads**.
3. Locate the BIOS update file for your computer:

   NOTE: The Service Tag for your computer is located on a label at the bottom of your computer.

   If you have your computer's Service Tag:

   a. Click **Enter a Tag**.

   b. Enter your computer's Service Tag in the **Enter a service tag:** field, click **Go**, and proceed to step 4.

   If you do not have your computer's Service Tag:

   a. Click **Select Model.**

   b. Select the type of product in the **Select Your Product Family** list.

   c. Select the product brand in the **Select Your Product Line** list.

   d. Select the product model number in the **Select Your Product Model** list.

   NOTE: If you have selected a different model and want to start over again, click **Start Over** on the top right of the menu.

   e. Click **Confirm**.
4. A list of results appear on the screen. Click **BIOS**.
5. Click **Download Now** to download the latest BIOS file.
   The **File Download** window appears.
6. Click **Save** to save the file on your desktop. The file downloads to your desktop.
7. Click **Close** if the **Download Complete** window appears.
   The file icon appears on your desktop and is titled the same as the downloaded BIOS update file.

8 Double-click the file icon on the desktop and follow the instructions on the screen.